Committee on Resources

Witness Testimony

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House of Representatives
Subcommittee on Forests and Forest Health
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Mr. Chairman and Committee Members, I would like to summarize the findings of our July 7, 1,997 paper presented to the Committee on "How Forests Can Help Reduce Carbon Dioxide Emissions to the Atmosphere".

Atmospheric Carbon Dioxide is Reduced by Forest Growth

Forests grow and capture carbon moving it out of the atmosphere and storing it in biomass. Recent studies suggest that the amount of carbon stored in U.S. forests is increasing. However, the rate at which this amount is increasing is slowing down. There exists a limit to the amount of carbon a forest can capture from the atmosphere and save it as biomass. Also, under disturbances, forests can rapidly return carbon to the atmosphere.

Carbon Storage Can Be Further Increased By Transferring Biomass to Products

The limit to carbon stored on forest land can be extended by transferring the biomass carbon to product carbon. Storing carbon in wood products extends the capacity of forest lands to absorb atmospheric carbon when the life span of the product is longer than the cutting cycle of the forest. There also is a limit to the extent that wood products can increase the carbon storage capacity of forest lands. Studies have estimated the range of carbon storage capacity extension of wood products to be from 10% to 66% of the biomass storage capacity. This range depends on forest management, forest type an wood products produce .

Forest management can increase the carbon through its management objectives. When forests are managed for long-term products, there is a greater amount of carbon transferred from the forest carbon pool to the product pool and less carbon transferred from the forest directly to the atmosphere by wood waste.

Forest type affects carbon storage through its inherent growth rates and species composition. Forests across the U.S. grow differently. Forests types with higher growth rates capture more carbon faster than forest types with lower growth rates.

Wood products affect carbon storage since they hold carbon captured by forests in terrestrial form. Short-lived wood products return carbon to the atmosphere more rapidly than long-lived wood products. Wood products also save terrestrial carbon when they displace fossil fuel energy through either direct substitution

with biofuels or indirect substitution through manufacturing process energy.

Forest Products Save Fossil Fuel Carbon

Wood products used to construct houses, furniture and other wood products extend the storage capacity of the forest by physically transferring the biomass carbon to a product carbon pool. There is also a savings in fossil-fuel carbon associated with the use of wood products. The savings occur because wood products require less manufacturing energy derived from fossil fuel sources than its competing non-wood products.

The effect on atmospheric carbon of fossil fuels displaced by wood products may be large. Studies have estimated the effect of less wood products use due to national forest harvest reductions to be around 19 rnillion metric tons of additional atmospheric carbon. This effect alone is larger than the estimated U.S. average annual increase in carbon dioxide emissions from 1990 to 1995--about 14 million metric tons.

Unintended Consequences Exist When Evaluating Single Issue Policy Options

There exists many options to utilize forests to reduce atmospheric carbon. By far the most effective way to keep carbon out of the atmosphere is to use wood products and save fossil fuels instead of substitute products.

Planting and growing more forests to take the carbon out of the atmosphere can be effective as long as these plantations do not substitute others which are more productive at capturing atmospheric carbon. Large scale planting programs have a limit to their potential to capture atmospheric carbon and may reduce the long-term carbon storage potential of forests if the use of wood products is not increasing by the same rate as the plantings.

The reduction of harvests from federal forests has led to greater carbon emissions nationally and internationally. Other forested areas within and outside of the U.S. increased their harvests to replace a portion of the lost federal timber harvests. These areas are less productive than those they replaced contributing to greater amounts of carbon emissions through less product recovery and greater acreage required to substitute the lost harvest.

The amount of the harvest reduction not made up by other producers has led to greater use of non-wood substitute products. The indirect substitution effect through the use of more fossil fuel-based manufacturing energy has further increased carbon emissions associated with the federal timber harvest. The federal policy to preserve habitat illustrates the unintended consequences of this policy on carbon emissions.

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